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Use of the American Urological Association Clinical Practice Guidelines: Data from the AUA Census

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Abstract

Introduction: Through systematic data review and expert consensus, the AUA (American Urological Association) produces clinical practice guidelines that serve to provide evidence-based guidance with an explicit clinical scope and purpose. In this study we determined whether urologists use clinical practice guidelines when making clinical decisions, and whether demographic factors are associated with not using the guidelines or with a lack of guideline awareness.

Methods: We examined the 2014 AUA Census. Our outcome was a question regarding whether the participant used AUA clinical practice guidelines in clinical decision making. We performed comparative statistical analyses, stratifying our outcome by demographic and practice specific variables.

Results: A total of 2,204 urologists completed the census, representing 18.9% of practicing urologists in the United States. Median age was 53 years and 91.1% were male. The majority of urologists used clinical practice guidelines (94.8%) in clinical decision making. Clinical practice guidelines had the lowest use among urologists 65 years old or older (89.2%), those in solo practice (88.3%) and pediatric specialists (87.9%). Based on a multivariable logistic regression analysis, factors associated with not using clinical practice guidelines included increasing age, metropolitan practice setting and solo practice. Gender, AUA section, level of rurality and fellowship training were not statistically associated with clinical practice guideline use.

Conclusions: The majority of urologists (approximately 95%) use AUA clinical practice guidelines to inform clinical decisions. Our findings support the importance of clinical practice guidelines and highlight potential opportunities for better targeted outreach to improve clinical practice guideline use among practicing urologists.

Key Words: practice guidelines as topic, urology, censuses

Abbreviations and Acronyms

AUA = American Urological Association

CPG = clinical practice guideline

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Clinical practice guidelines provide recommendations for clinicians to manage specific conditions and to optimize patient care.[1] CPG recommendations are produced through a systematic review of the available evidence, and a structured assessment of the benefits, risks and burdens of care.[2] CPGs undergo rigorous review, are endorsed by national and international organizations and are circulated widely.[3] They serve to inform clinicians on the best scientific evidence in order to reduce inappropriate variation in practice, promote efficiency, provide a continuing update on optimal medical care and highlight knowledge gaps in the literature. The sheer volume and speed in the growth of medical literature compel most clinicians to be familiar with and use CPGs. The importance of the guidelines for the clinician is further solidified as CPG content is being used for board certification and recertification questions. Hospital administrators, insurance companies and government agencies have increasingly used CPG adherence as part of pay-for-performance or quality metrics, although CPGs are not specifically designed for this purpose.[4] Furthermore, lawyers examine CPG adherence when investigating medical malpractice.[5] Clinicians will be increasingly expected to be familiar with and to use CPGs.[6]

The AUA has been supporting and organizing the creation of CPGs since 1994 with the production of the staghorn calculi guidelines.[7] AUA CPGs are consistent with the rapidly evolving science of clinical guideline development. The process begins with the development of specific research questions based on the patient, intervention, comparator and outcomes. Using a systematic literature review, data extraction, analysis and synthesis, an evidence report is created and ultimately used to develop the final guideline statements. To ensure that AUA CPGs are current with the literature, an updated literature review is performed on each guideline using a systematic review, methodologist and expert panel according to an AUA approved schedule. A recommendation is then developed that the CPG remains current, needs minor revision or needs full revision. The topic prioritization schema developed for new guidelines provides a numeric value based on several factors, including the topic importance to urologists, the current status of the existing peer reviewed literature as well as the existing CPG, the need to improve entry level education or to synthesize new high level evidence that would likely impact standard management regarding the topic.

Previous research has shown variable clinical adherence with published AUA CPGs.[8,9] However, little is known regarding the self-reported use of AUA CPGs by AUA members. Understanding CPG use could inform future dissemination efforts and allow targeted promotion to subpopulations of urologists. Our objective was to determine what demographics are associated with CPG awareness and use in clinical practice. We hypothesized that physician demographics such as age and practice location are associated with CPG use and awareness.

Methods and Materials

Study Population

We analyzed data from the 2014 AUA Census. The census is a specialty-wide survey disseminated to the global urology community including the U.S.[10] The 2014 AUA Census was collected from May 2014 to September 2014 and contains demographic and practice characteristics. The 2,204 U.S. census respondents represent 11,703 practicing urologists in the U.S as defined by the National Provider Identifier.[10] Census samples were weighted based on post-stratification factors (ie gender, location and years since initial certification) to adjust for the representation of each respondent by assigned proper sample weight.[10] The corresponding author's institutional review board gave the study exempt status.

Outcome

We examined a single question regarding whether the participant used the AUA CPG in clinical decision making. Respondents could answer that they 1) use AUA clinical guidelines in clinical decision making, or 2) do not use or are not aware of AUA clinical guidelines.

Predictor Variables

We analyzed demographic characteristics including age, race and ethnicity (white, nonwhite), Hispanic, gender (male, female), AUA region (Southeastern, Western, North Central, South Central, Mid-Atlantic, New York, New England, Northeastern) and level of rurality (metropolitan, nonmetropolitan). Gender and location were collected from the National Provider Identifier file while all other participant information was self-reported by respondents. We defined levels of rurality using zip codes that correspond to the rural-urban commuting areas of the U.S. Census.[11,12]

Practice characteristics analyzed included work setting (single urology group, academic, multispecialty group, solo practice, public or private hospital, other) and provider subspecialty (general, oncology, endourology/robotics, pediatrics, sexual health/reconstruction, female pelvic medicine).

Statistical Analysis

All data were analyzed with IBM® SPSS® Statistics software version 23.0. The complex samples function in SPSS was used to analyze complex survey samples to generate representative data by specialty. These data were analyzed with IBM SPSS Statistics 22 complex sample module to account for the complex sample design. CSLOGICTIC procedure was used to conduct multivariable logistic regression analysis and determine odds ratios for each of the practicing urologists' characteristics on the likelihood that CPG will be used in clinical decision making in a multivariate model. Taylor series linearization variances were used to obtain correct standard errors and confidence intervals. Statistical significance for all cases was defined as $p \leq 0.05$.

Results

Weighted demographics for practicing U.S. urologists are provided in table 1. Median age was 53 years with the age group less than 45 having the highest representation. The cohort consisted of predominately white (83.4%) men (91.1%) The Southeastern section contributed the largest proportion of urologists (21.2%), followed by the Western (18.5%), North Central (18.4%), South Central (13.9%), Mid-Atlantic (10.4%), New York (7.6%), New England (5.1%) and Northeastern (4.8%) sections. Most respondents self-identified as general urologists (63.3%), followed by subspecialization in oncology (11.4%), endourology/robotics (7.0%), pediatrics (6.0%), sexual health/male reconstruction (5.6%) and female pelvic medicine (4.7%).

The majority of urologists used CPG statements (94.8%) in clinical decision making. Univariate analysis indicated that urologists less than 45 years old were most likely to use CPG (98.9%) while urologists 65 years old or older were least likely (89.2%) ($p < 0.01$, table 2). Race and ethnicity did not influence CPG use while gender did. Women were more likely to use guidelines than men (97.2% vs 94.6%, $p < 0.01$). Members of the New England section were most likely to use CPGs (97.8%), while members of the New York and Mid-Atlantic sections had the lowest use (92.6% each, $p < 0.01$). Urologists in metropolitan areas (94.6%) were less likely to use CPGs than those in rural areas (96.4%) ($p=0.006$). Providers who worked in an academic (96.9%) or public/private hospital (96.9%) had the highest guideline use, followed by multispecialty group (95.5%), single urology group (94.7%) and solo practice (88.3%) ($p < 0.01$). Practitioners trained in endourology/robotics (98.2%) had the highest CPG use, followed by oncology (97.8%), sexual health/reconstruction (95.1%), general urology (94.5%), female pelvic medicine (93.1%) and pediatrics (87.9%) ($p < 0.01$).

In a multivariable model younger age increased the odds of using CPGs (table 3). Those less than 45 years old had a 9.8 times greater odds of using CPGs compared to urologists 65 years old or older. Compared to solo practitioners, urologists working at institutions had increased odds of using CPGs (OR 2.58, 95% CI 1.40−4.76). Those working in nonmetropolitan areas used the guidelines more (OR 2.47, 95% CI 1.12−5.47).

Discussion

Among urologists who completed the AUA Census, the majority use AUA CPGs in clinical decision making.

Table 1.
Demographics and practice settings of AUA census respondents

	No. (%)
Age:	
Less than 45	3,712 (31.7)
45−54	2,595 (22.2)
55−64	2,700 (23.1)
65 or Older	2,679 (22.9)
Race:	
White	9,241 (83.4)
Nonwhite	1,840 (16.6)
Hispanic:	
Yes	466 (4.1)
No	10,931 (95.9)
Gender:	
Male	10,658 (91.1)
Female	1,045 (8.9)
AUA section:	
Southeastern	2,476 (21.2)
Western	2,166 (18.5)
North Central	2,158 (18.4)
South Central	1,629 (13.9)
Mid-Atlantic	1,218 (10.4)
New York	893 (7.6)
New England	596 (5.1)
Northeastern	567 (4.8)
Level of rurality:	
Metropolitan	10,387 (88.8)
Nonmetropolitan	1,316 (11.2)
Work setting:	
Single urology group	4,029 (34.4)
Academic	2,679 (22.9)
Multispecialty group	2,031 (17.4)
Solo practice	1,444 (12.3)
Public or private hospital	1,292 (11.0)
Other	229 (2.0)
Subspecialty:	
General	7,412 (63.3)
Oncology	1,337 (11.4)
Endourology/robotics	825 (7.0)
Pediatrics	702 (6.0)
Sexual health/male reconstruction	655 (5.6)
Female pelvic medicine	553 (4.7)

Table 2.
Demographics and practice settings of respondents who use AUA guidelines when making clinical decisions vs those who do not or are unaware

	No. Use AUA Guidelines (%)	No. Do Not Use AUA Guidelines (%)	p Value
Age:			
Less than 45	3,671 (98.9)	41 (1.1)	<0.01
45–54	2,496 (96.2)	99 (3.8)	
55–64	2,542 (93.5)	176 (6.5)	
65 or Older	2,390 (89.2)	288 (10.8)	
Race:			
White	8,762 (94.8)	479 (5.2)	0.662
Nonwhite	1,741 (94.6)	100 (5.4)	
Hispanic:			
Yes	433 (92.9)	33 (7.1)	0.065
No	10,369 (94.9)	562 (5.1)	
Gender:			
Male	10,083 (94.6)	575 (5.4)	<0.01
Female	1,016 (97.2)	29 (2.8)	
AUA section:			
Southeastern	2,300 (92.9)	175 (7.1)	<0.01
Western	2,081 (96.0)	86 (4.0)	
North Central	2,073 (96.1)	85 (3.9)	
South Central	1,580 (97.0)	49 (3.0)	
Mid-Atlantic	1,128 (92.6)	90 (7.4)	
New York	827 (92.6)	66 (7.4)	
New England	582 (97.8)	13 (2.2)	
Northeastern	527 (93.1)	39 (6.9)	
Level of rurality:			
Metropolitan	9,830 (94.6)	557 (5.4)	0.006
Nonmetropolitan	1,269 (96.4)	47 (3.6)	
Work setting:			
Single urology group	3,813 (94.7)	215 (5.3)	<0.01
Academic	2,596 (96.9)	83 (3.1)	
Multispecialty group	1,939 (95.5)	92 (4.5)	
Solo practice	1,275 (88.3)	169 (11.7)	
Public or private hospital	1,251 (96.9)	40 (3.1)	
Subspecialty:			
General	7,007 (94.5)	406 (5.5)	<0.01
Oncology	1,308 (97.8)	29 (2.2)	
Endourology/robotics	810 (98.2)	15 (1.8)	
Pediatrics	618 (87.9)	85 (12.1)	
Sexual health/reconstruction	624 (95.1)	32 (4.9)	
Female pelvic medicine	515 (93.1)	38 (6.9)	

Younger urologists (less than 45 years old) constituted the highest proportion of the cohort and also had the highest use of CPG (98.9%). We saw the lowest use among the oldest urologists, those in solo practice and those specializing in pediatrics.

Nearly all younger practicing urologists use CPGs. This may reflect exposure to CPGs during residency training and awareness by urologists that CPGs contain material readily testable on the various American Board of Urology certifying examinations. Conversely, urologists age 65 or older represented the lowest CPG use. This cohort includes members who no longer need to take recertification examinations, which could influence CPG use. The overall high rate of use in the entire cohort may be the result of educational efforts by the AUA and other organizations to promote CPG use, such as unveiling guidelines at the AUA national and sectional meetings to increase exposure, as well as other publicity efforts and multiple platforms to access guidelines (handbooks, mobile applications, increased exposure). Furthermore, increased interest in and awareness of quality and safety metrics associated with pay-for-performance established by payers may promote CPG awareness.[13]

The study does have limitations. Our outcome is based on a single item question. For respondents who provided a negative response, it is unclear whether they were aware of the clinical guidelines and chose not to use them, or if they were unaware that the CPGs exist. The census also did not ascertain use of guideline statements not produced by the AUA that could be preferentially used by some urologists. The accuracy of CPG use may be overinflated by social disability bias.[14] Respondents may have felt compelled to answer the census CPG question in the affirmative if they were influenced by AUA sponsorship of the survey or

Table 3.
Multivariate associations among demographic, geographic and practice factors in using AUA guidelines when making clinical decisions

	OR	95% CI
Age group:		
Less than 45	9.88	4.06−24.07*
45−54	2.89	1.63−5.10*
55−64	1.56	0.96−2.54
65 or Older (baseline)		
Work setting:		
Single specialty	1.86	1.07−3.23*
Multispecialty	1.83	0.95−3.54
Institutions	2.58	1.40−4.76*
Solo (baseline)		
Rurality:		
Nonmetropolitan area	2.47	1.12−5.47*
Metropolitan area (baseline)		

*$p < 0.05$.

completed the survey at the AUA annual meeting. While the cohort sampled a large group of urologists, the results may not be generalizable to all urologists. Finally, while CPG use is high, this census question provides no detail regarding guideline compliance or associated measures of quality.

Conclusions

The majority of urologists (approximately 95%) use AUA CPGs to inform clinical decisions. Older age, subspecialization and solo practice were associated with not using or being aware of the guidelines. Our findings support the importance of CPGs as a resource for urology practice and highlight potential opportunities for better targeted outreach to improve CPG use among practicing urologists.

References

1. Wilson MC, Hayward RS, Tunis SR et al: Users' guides to the Medical Literature. VIII. How to use clinical practice guidelines. B. what are the recommendations and will they help you in caring for your patients? The Evidence-Based Medicine Working Group. JAMA 1995; **274:** 1630.
2. Morey AF, Brandes S, Dugi DD 3rd et al: Urotrauma: AUA guideline. J Urol 2014; **192:** 327.
3. Institute of Medicine: Clinical Practice Guidelines We Can Trust. Washington, DC: The National Academies Press 2011.
4. Rosenthal MB, Frank RG, Li Z et al: Early experience with pay-for-performance: from concept to practice. JAMA 2005; **294:** 1788.
5. Kesselheim AS, Ferris TG and Studdert DM: Will physician-level measures of clinical performance be used in medical malpractice litigation? JAMA 2006; **295:** 1831.
6. Woolf SH, Grol R, Hutchinson A et al: Clinical guidelines: potential benefits, limitations, and harms of clinical guidelines. BMJ 1999; **318:** 527.
7. Segura JW, Preminger GM, Assimos DG et al: Nephrolithiasis Clinical Guidelines Panel summary report on the management of staghorn calculi. The American Urological Association Nephrolithiasis Clinical Guidelines Panel. J Urol 1994; **151:** 1648.
8. Auffenberg GB, Gonzalez CM, Wolf JS Jr et al: An observational analysis of provider adherence to AUA guidelines on the management of benign prostatic hyperplasia. J Urol 2014; **192:** 1483.
9. Strope SA, Elliott SP, Saigal CS et al: Urologist compliance with AUA best practice guidelines for benign prostatic hyperplasia in Medicare population. Urology 2011; **78:** 3.
10. The State of the Urology Workforce and Practice in the United States 2014. Linthicum, Maryland: American Urological Association 2015.
11. Uhlman MA, Gruca TS, Tracy R et al: Improving access to urologic care for rural populations through outreach clinics. Urology 2013; **82:** 1272.
12. United States Department of Agriculture, Economic Research Service: 2010 Rural-Urban Commuting Area (RUCA) Codes 2014. Available at https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/.
13. Gonzalez CM, Penson D, Kosiak B et al: Pay for performance: rationale and potential implications for urology. J Urol 2007; **178:** 402.
14. Gnambs T and Kaspar K: Socially desirable responding in web-based questionnaires: a meta-analytic review of the candor hypothesis. Assessment 2017; **24:** 746.

Editorial Commentary

AUA clinical practice guidelines provide the framework for managing a wide range of diseases through an evidence-based review that is comprehensive and concise. For the physician that means accessing reliable, up-to-date guidelines in a user-friendly format. However, the adoption of CPGs in practice is variable and some have suggested there is low adherence.[1]

This study examined only a single question regarding whether the AUA member used the AUA CPG in clinical decision making. Respondents answered that they do use AUA CPGs, or that they do not use them or are not aware of them. So, while the good news is that the majority of urologists surveyed use CPGs in decision making (94.8%), we are left with many questions. For those who do use them,

the extent and adherence to the treatment of patients on a daily basis are largely unknown. And, for those who do not, the barriers to adoption are not adequately known or addressed.

The importance of a good understanding of CPGs is evident in their use in board certification and recertification. In addition, insurance providers have increasingly used adherence to CPGs as part of quality metrics. Challenges for the future include increasing the number of CPGs available and updating prior CPGs to ensure the most contemporary management is available. An additional barrier is determining the best way to disseminate the CPG so that these guidelines will be widely available to clinicians regardless of age, geographic setting or learning style. The further development of practice management tools such as registries will allow us to measure adherence and track outcomes.

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Reference

1. Karl A, Adejoro O, Saigal C et al: General adherence to guideline recommendations on initial diagnosis of bladder cancer in the United States and influencing factors. Clin Genitourin Cancer 2014; **12:** 270.

Reply by Authors

We appreciate the thoughtful comments made by Dr. Cookson. We agree that our single question regarding the use of CPGs leaves unaddressed the more important questions of improving decision making and impacting patient outcomes. Those answers will come, in part, from measures of implementation that may arise through integration into the electronic health record, in reductions in unnecessary testing, in disease and patient reported outcomes, and costs of care. In the coming years the AUA Quality (AQUA) Registry may serve as a source to answer questions related to CPG use. Continued attention to these important health services topics by researchers and research funding agencies is paramount.

We laud the use of the AUA's high level, scientifically developed, up-to-date CPGs in postgraduate education and certifications, and in the development of Choosing Wisely® statements. We support registries wholeheartedly. However, we are concerned about the adoption of guideline statements into quality metrics as the recommendation may not have been constructed to adequately serve that purpose. The AUA Science and Quality Council, of which the Quality Improvement and Patient Safety Committee is an integral part, is working on behalf of urologists to ensure that the federal and local quality metrics are the best to measure quality of care, cognizant that the ultimate impact of any clinical practice guideline is at the level of the urologist and his/her patient. Effectively engaging that dyad is paramount to all that we do.